

TECHNICAL MANUAL
SD425A Keyboard
SD429 Video Display

**Scientific
Atlanta**

Spectral Dynamics Division

MP MASTER



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SERIAL _____

TECHNICAL MANUAL

SD425A Keyboard SD429 Video Display

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(*Except those components covered under the 90 day warranty)

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Laboratory equipment used to perform the tests and inspections is calibrated and controlled to assure accuracies consistent with specification requirements. All working standards are periodically certified, and are traceable to the National Bureau of Standards to the extent allowed by the Bureau's calibration facility. All factory test, measurement, and diagnostic equipment used, is controlled to the requirements of MIL-STD-45662.

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Table of Contents

SECTION A SD425A KEYBOARD

A-1	GENERAL INFORMATION	A-1
A-1.1	Introduction	A-1
A-1.2	Specifications	A-1
A-1.3	System Interface	A-2
A-2	INSTALLATION	A-3
A-2.1	Introduction	A-3
A-2.2	Initial Inspection	A-3
A-2.2.1	Unpacking	A-3
A-2.2.2	Physical Damage	A-3
A-2.2.3	Packing for Reshipment	A-3
A-2.2.4	Warranty Or Damage Claims	A-4
A-2.3	Safety Precautions	A-4
A-2.4	Preparations For Use	A-4
A-2.4.1	Connections and Power Requirements	A-4
A-2.4.2	Mounting	A-4
A-3	OPERATION	A-5
A-3.1	Operational Concept	A-5
A-3.2	Keyboard Indicators (See Figure A-2)	A-5
A-3.3	Keyboard Keys (See Figure A-2)	A-7
A-4	MAINTENANCE	A-11
A-4.1	Introduction	A-11
A-4.2	Preventive maintenance	A-11

SECTION B SD429 VIDEO DISPLAY

B-1	INTRODUCTION	B-1
B-1.1	Introduction	B-1
B-1.2	Associated Documentation	B-1
B-1.3	Physical Description	B-1
B-1.4	Accessories	B-1
B-1.5	Specifications	B-2
B-2	INSTALLATION	B-3
B-2.1	Introduction	B-3
B-2.2	Initial Inspection	B-3
B-2.2.1	Unpacking	B-3
B-2.2.2	Physical Damage	B-3
B-2.2.3	Packing For Reshipment	B-4
B-2.2.4	Warranty Or Damage Claims	B-4

B-2.3	SAFETY PRECAUTIONS	.B-4
B-2.3.1	Explosion Hazards	.B-5
B-3.2.2	Shock/Burn Hazards	.B-5
B-3.2.3	Cooling	.B-5
B-2.4	Preparation For Use	.B-5
B-2.4.1	Power Requirements	.B-5
B-2.4.2	Mounting	.B-5
B-2.4.3	Installation Checkout	.B-5
B-3	OPERATION	.B-6
B-3.1	Introduction	.B-6
B-3.2	Controls And Indicators	.B-7
B-3.3	Connections	.B-8
B-4	MAINTENANCE	.B-9
B-4.1	Introduction	.B-9
B-4.2	No Power Indicator or Raster	.B-10
B-4.3	The Power Indicator is Illuminated, and B + is present, but There is no Raster	.B-11
B-4.4	Raster is Normal, but no picture or Data Display	.B-11
B-4.5	Vertical Synchronization Cannot be Made	.B-12
B-4.6	Horizontal Synchronization Cannot be Made	.B-12
B-5	REPLACEMENT PARTS	.B-15
B-5.1	Introduction	.B-15
B-5.2	Parts List	.B-15

List of Figures

Figure A-1.	Typical System Interface for the SD425A.	.A-2
Figure A-2.	SD425A Keyboard Configuration.	.A-6
Figure A-3.	SD425A and 13414 Interconnect (625 Baud).	.A-12
Figure A-4.	SD425A and 13467 Interconnect (600 Baud).	.A-12
Figure A-5.	SD425A and SD1700 Interconnect (600 Baud).	.A-12
Figure B-1.	SD429 Controls And Indicators.	.B-6
Figure B-2.	One Display.	.B-8
Figure B-3.	Two or More Displays.	.B-8
Figure B-4.	SD429 Display Unit Schematic Diagram.	.B-13

List of Tables

Table A-1.	HEX Codes Xmitted by SD425A Special Keys.	.A-10
Table B-1.	Replacement Parts List (7 Pages).	.B-16

SECTION A

SD425A Keyboard

SECTION A

SD425A KEYBOARD

A-1 GENERAL INFORMATION

A-1.1 Introduction

This segment of the SD425A/SD429 Technical Manual provides instructions for unpacking, operation, and special use features of the SD425A Keyboard (P/N 22127600)

Troubleshooting and repair of the SD425A Keyboard is a factory function. In the event of hardware failure of the SD425A Keyboard, the keyboard should be returned to the Scientific–Atlanta, Spectral Dynamics Division Customer Service Office for Repair. Be sure to contact the Customer Service Office before returning the unit at 1-800-426-8887 to obtain a returned material authorization (RMA) number. This number must be included on all paperwork sent with the unit. The typical installation of the SD425A Keyboard is shown in Figure A-1. Refer to your system Operator's Manual for specific system operating procedures.

A-1.2 Specifications

Data Rate:	600 or 625 Baud, automatically selected for connected PWA (See page a-69 of this Manual)
Power:	+ 12 $\pm$ 15V
Interface:	Serial, asynchronous modified EIA RS232C, (negative logic, TTL +5 volts to ground), full duplex
Operating Environment:	
Temperature	10° to 40° C (50° to 104° F)
Relative Humidity	10% to 90% (non-condensing)
Altitude	2400 meters (8,000 feet)
Dimensions:	
Height	5.1 cm (2 inches)
Width	48.3 cm (19 inches)
Depth	21.6 cm (8.5 inches)
Weight:	2.0 kg (4.5 pounds)
Key Layout:	65-key arrangement similar to a standard typewriter keyboard, with a 18-key auxiliary keypad
Indicators:	Eight LED indicators and audible tone and click signals

A-1.3 System Interface

Figure A-1 shows a typical interface with the SD425A Keyboard, the SD429 Video Printer, a Digital Plotter, and an example Model 13414 Real Time Display PWA. The Detailed Inset Shows the connector pin identification details. The exact interface of your SD425A Keyboard depends on your System.

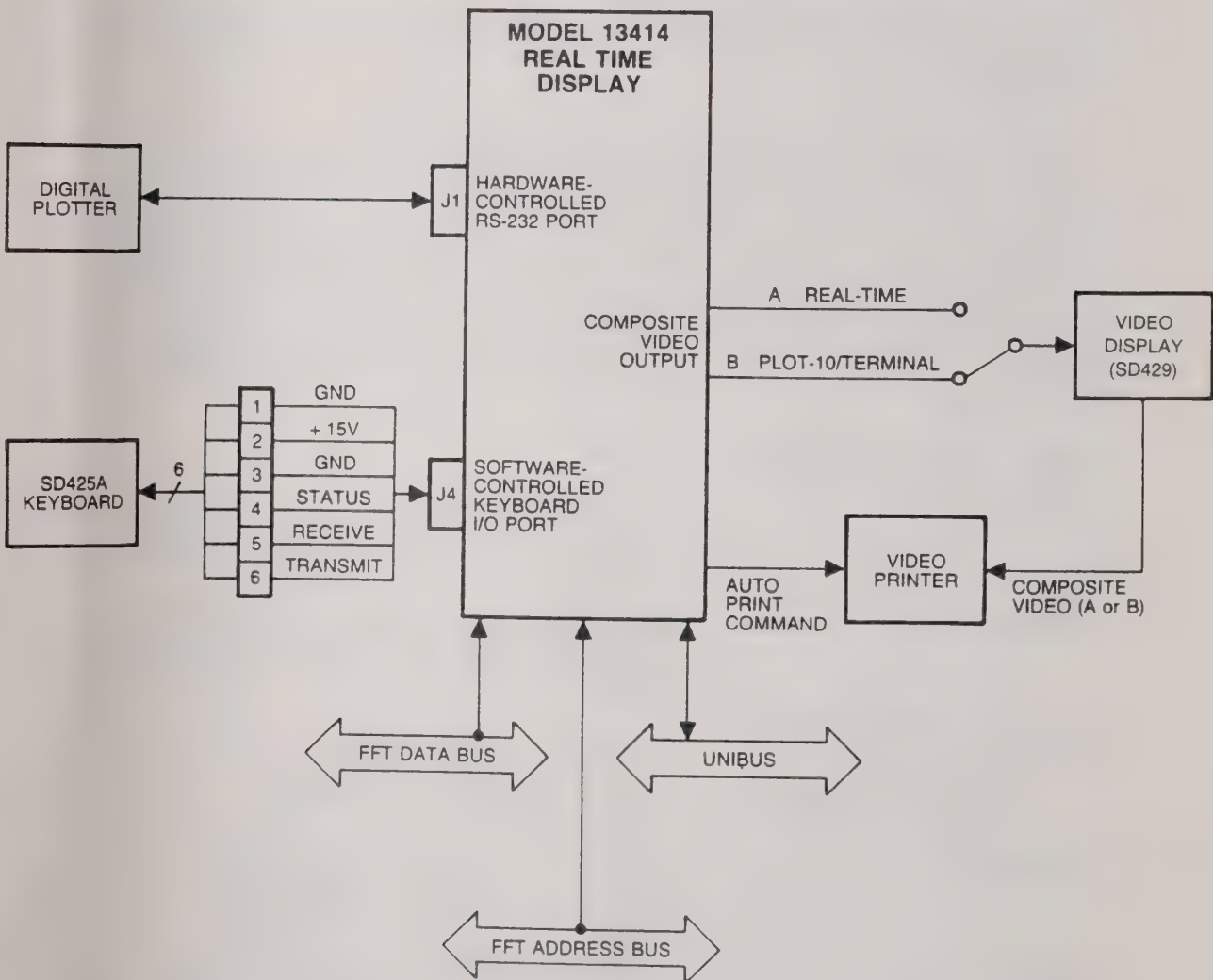


Figure A-1, Typical System Interface for the SD425A.

A-2 INSTALLATION

A-2.1 Introduction

This section presents procedures for initial inspection, installation and safety precautions.

A-2.2 Initial Inspection

A-2.2.1 Unpacking

NO special procedures are required for unpacking the SD425A Keyboard. You should take care not to drop or cause damage to the unit while unpacking or installing the keyboard.

Conduct an inventory of all items listed on the packing list supplied with the shipping container. In the event of a shortage, or if shipping damage is apparent, file a claim with the carrier claims agent and forward a copy of the claim to Scientific-Atlanta or call 1-800-426-8887.

Save the packing and shipping container for possible reshipment of the keyboard.

A-2.2.2 Physical Damage

Conduct a visual inspection of the keyboard for signs of physical damage. Photos of damage are recommended to substantiate any subsequent claim. This inspection includes:

1. checking the keyboard for scratches and cracks
2. checking the keys for mechanical operation
3. checking accessories for physical damage

A-2.2.3 Packing for Reshipment

If the SD425A Keyboard is to be re-shipped, use the original shipping container and packing materials. If those materials are not available, the following materials are recommended:

1. a heavy carton with strength of 200 lbs/sq. in., large enough for the keyboard and packing material
2. paper or plastic to cover the keyboard surfaces
3. polyurethane, bubble-pack, or other shock absorbing material to protect the keyboard from a drop of up to 6 feet
4. **DO NOT USE "FLOWABLE STYROFOAM" PACKING** (see note on flowable packing on Page B-4)

A-2.2.4 Warranty Or Damage Claims

If the SD425A Keyboard was physically damaged in shipment or does not operate as specified, immediately notify the carrier and the Scientific-Atlanta Spectral Dynamics Division Customer Service office or representative by calling 1-800-426-8887. The representative will arrange for repair or replacement of the system component.

NOTE

Be sure to contact the Spectral Dynamics Division, Customer Service Department, at 1-800-426-8887 to obtain a Returned Material Authorization (RMA) Number prior to returning any equipment

Please attach a card to the component that shows the Returned Material Authorization Number, your company's name, address, person to contact, and telephone number. A short description of the damage or problem will also be helpful.

A-2.3 Safety Precautions

The SD425A Keyboard presents no personnel or equipment hazards if operated according to the instructions in this manual.

A-2.4 Preparations For Use

A-2.4.1 Connections and Power Requirements

The SD425A Keyboard has an installed 6 foot, coiled-line, 6 conductor cable with a standard male 6-pin DIN connector. This plugs into the specified system female connection.

The SD425A Keyboard receives all (+ 12 volt $\pm$ 15 volt power from the host system via the 6-pin connector.

The "ON LINE" LED will light when the system power is fed to the keyboard.

A-2.4.2 Mounting

The SD425A Keyboard may be permanently mounted in a system rack or cabinet configuration, or may be placed on any convenient stable surface.

A-3 OPERATION

A-3.1 Operational Concept

This section describes how the SD425A Keyboard is used in Scientific–Atlanta (S–A) digital vibration control systems. The keyboard has capabilities not used in these systems, or described in this manual.

The SD425A Keyboard is a primary input device for the system computer. The keyboard transmits serial data streams of eight (8) bits per character code, and receives data back to activate the various indicators on the keyboard. This code is the same each time the key is pressed, but the meaning to the computer is determined by the programming of the computer. The meanings and details presented in this manual are specific to the S–A series of digital vibration control systems.

A-3.2 Keyboard Indicators (See Figure A-2)

The SD425A Keyboard has eight (8) LED indicators, and provides audible signals from the built–in speaker

ON LINE (LED)

This LED lights to indicate that the keyboard is powered–up and is ready to be used. When this LED is lighted all characters typed at the keyboard are transmitted to the system computer. ON LINE is the normal condition for the keyboard in S–A digital vibration control systems.

LOCAL (LED)

This LED lights to indicate that the keyboard is powered–up but is not connected to the computer. LOCAL operation of the keyboard may be used to annotate plots prior to video printing a plot for a "hardcopy" record.

KBD LOCKED, L1, L2, L3 and L4 (LEDs)

These LEDs are not used in the S–A digital vibration control systems.

CAPS LOCK (LED)

The CAPS LOCK LED lights when the CAPS LOCK function is activated. (The LED operates, but this key has no effect when the SD425A Keyboard is in the ON LINE mode. The CAPS LOCK key does operate as on a typewriter when in the LOCAL mode.

AUDIBLE SIGNALS

Short Tone (Click) – The click is sounded by the keyboard whenever a key is pressed to send a code, except:

SHIFT and CTRL keys do not click because they do not send a code, but only modify the code of the other keys,

when the KBD LOCKED indicator is lighted, because the characters typed are not going to the computer,

when the keyclick feature has been turned off in the SETUP mode.

Long Tone (Bell) – The bell sounds to indicate a bell code was received from the computer, or the keyboard buffer is full.

Series of Long Tones – The keyboard sounds a series of long tones on rapid succession to indicate that an internal system error has occurred. When this occurs, the operator must power-down (shut off) the keyboard and the system, then re-power the system and keyboard, and then re-initiate the "boot" process.

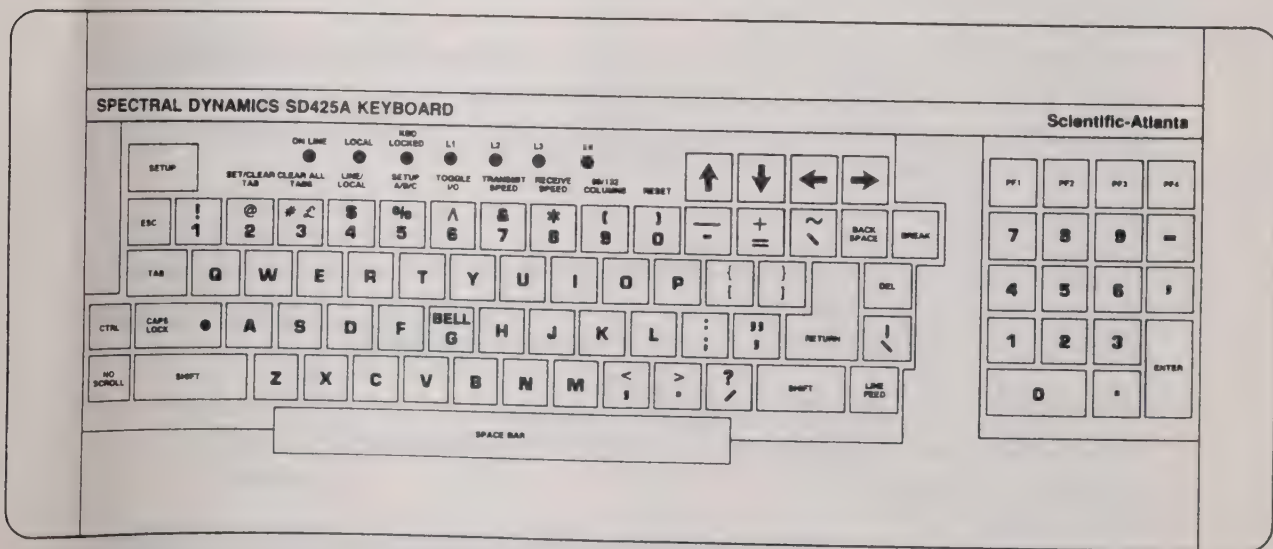


Figure A-2, SD425A Keyboard Configuration.

A-3.3 Keyboard Keys (See Figure A-2)

The SD425A Keyboard has 65 character, symbol and special function keys configured similarly to a standard typewriter and an 18 key numeric and special function keypad. When used with the S-A digital vibration control systems the keys have the functions as noted in this section.

SETUP

Depress and then use the "4" key to toggle the keyboard between ON LINE and LOCAL use. All other SETUP functions are disabled in S-A systems.

Four Arrow Keys

These keys are disabled when the keyboard is in the ON LINE mode (the ← prints ©H on the screen). In the LOCAL mode they move the cursor one space in the direction the arrow points (the ← deletes the character to the left also).

PF1

When pressed, this key clears the display on the screen.

PF2

Enables the averaging function of S-A digital vibration control systems when in the ON LINE mode. The following steps are an example of how to use the PF2 key:

1. Press PF2
2. Select the desired number of averages as a power of two (2^n), i.e. 2,4,8,16, ..., 128, ..., and press the desired numeral keys.
3. Press the ENTER or RETURN key.

This sequence will cause the spectral data displayed on the monitor to gradually reform to the average function entered. The higher the power of two entered, the greater the compression (i.e. leveling) effect on the spectral data.

PF3

Toggles the display on the monitor only when in the ON LINE mode. The SD426 Display is capable of displaying any of several displays including ADM mode - directory menu, PLOT 10, Real Time mode spectral data and combinations of data and annotation.

PF4

Causes the optional video printer to make a "hardcopy" print of the current display on the SD426 Monitor. This key operates in both ON LINE and LOCAL mode.

ESC (Escape)

Transmits the code for "escape" to the computer.

Thirteen Numerical / Character Keys

Used in dialog with the system computer when in ON LINE mode, and enter the numerical or character on the screen in the LOCAL mode. The CAPS LOCK key has no effect on these keys. The SHIFT key shifts to the top symbol on each key.

BACK SPACE

Disabled when in the ON LINE mode (prints ©H on the screen). In the LOCAL mode this key moves the cursor one space to the left and deletes the character to the left (same as ←).

BREAK

Disabled in S-A systems

TAB

Moves the cursor 8 spaces to the right (or other programmed space count) as on a typewriter.

DEL (Delete)

Deletes the character to the left of the cursor and moves the cursor one space to the left.

CTRL (Control)

Modifies the code sent by another key. The CTRL key must be held down while pressing another key.

CAPS LOCK

Disabled in the ON LINE mode but in the LOCAL mode:

1. Lights the LED on the key, and causes all letter characters to be upper case.
2. Turns off the LED on the key and causes all letter characters to be lower case

The CAPS LOCK key has no effect on the numerical, special character or punctuation keys.

NO SCROLL

Temporarily suspends transmissions from the system computer, allowing the operator additional and controlled time to view a display before it scrolls over. Scrolling is resumed by pressing the NO SCROLL key a second time. The NO SCROLL key is useful only in the ON LINE mode.

SHIFT

These two keys shift to the upper character on numerical and punctuation keys. The SHIFT keys have no effect on character keys in the ON LINE mode because all letters are upper case in the ON LINE mode. IN the LOCAL mode the SHIFT keys cause upper case letters to be entered on the display screen only while they are held down.

LINE FEED

Transmits a line feed code and causes the cursor to descend one line on the screen.

RETURN or ENTER

Send a carriage return and a line feed code to the computer which causes the cursor to descend one line on the display screen.

Thirteen Numerical and Symbol Keys on the 18-Key Keypad

Transmits the code for the face character to the computer in the ON LINE mode and to the display screen in the LOCAL mode.

HEX

The HEX code transmitted when special keys are pressed, and when the SHIFT, CTRL, and SHIFT & CTRL buttons are pressed while pressing the special key are presented in Table A-1. The meaning of the HEX code to the system computer is then a function of the system program. Not all codes listed are used in all systems.

Table 1-1. Hex Codes Xmitted by SD425A Special Keys.

KEY	REGULAR	SHIFT	CTRL	SHIFT&CTRL
ESC	1B	1B	1B	1B
SETUP	80	A0	C0	E0
BACK SPACE	84	A4	C4	E4
NO SCROLL	83	83	83	83
RETURN	9B			

KEYPAD KEYS

PF1	89	A9	C9	E9
PF2	8A	AA	CA	EA
PF3	8B	AB	CB	EB
PF4	8C	AC	CC	EC
7	8D	AD	CD	ED
8	8E	AE	CE	EE
9	8F	AF	CF	EF
-	90	B0	D0	F0
4	91	B1	D1	F1
5	92	B2	D2	F2
6	93	B3	D3	F3
,	94	B4	D4	F4
1	95	B5	D5	F5
2	96	B6	D6	F6
3	97	B7	D7	F7
ENTER	98	B8	D8	F8
0	99	B9	D9	F9
.	9A	BA	DA	FA

A-4 MAINTENANCE

A-4.1 Introduction

The SD425A Keyboard does not have any adjustments and requires no calibration. Customer maintenance is not practical, therefore no instructions are provided. The best maintenance procedure is to protect the keyboard from physical damage, moisture and extremes of heat and cold.

The SD425A Keyboard should provide long term trouble-free service. In the unlikely event of hardware failure, contact the Scientific-Atlanta Spectral Dynamics Division Customer Service group at 1-800-426-8887 for assistance.

A-4.2 Preventive maintenance

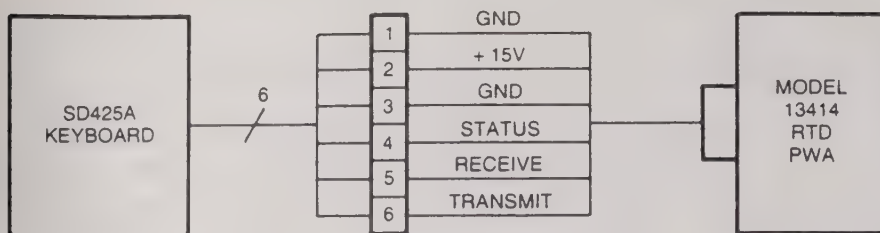
Inspection

Periodically inspect the SD425A Keyboard for physical damage to the keys, The connector and connector cable, and the keyboard case.

Cleaning

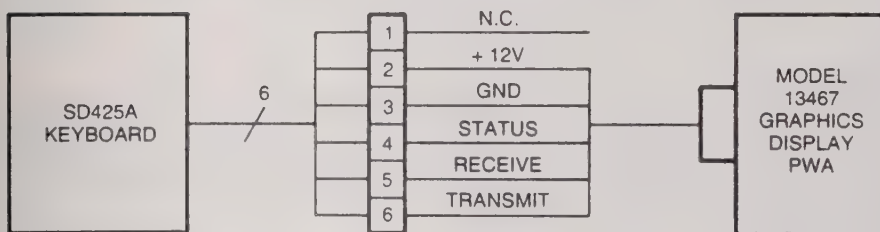
Periodically clean the surfaces of the keyboard with a damp cloth. Heavy dirt or oil may be removed by wetting the cloth with a mild detergent solution, and wiping with the cloth. Dust and loose dirt should be removed by carefully vacuuming, especially around the keys.

Do not use solvents or strong cleaning solutions which may damage the plastic surface or the electronic components inside the keyboard.



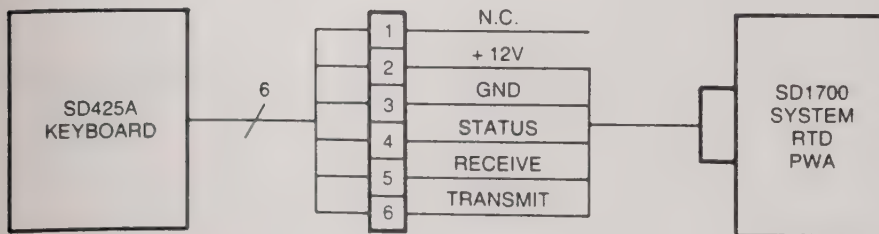
PWA 21867300

Figure A-3. SD425A and 13414 Interconnect (625 Baud).



PWA 22021400

Figure A-4. SD425A and 13467 Interconnect (600 Baud).



PWA 22084500

Figure A-5. SD425A and SD1700 Interconnect (600 Baud).

SECTION B

SD429 Video Display

SECTION B

SD429 VIDEO DISPLAY

B-1 INTRODUCTION

B-1.1 Introduction

The SD429 (P/N 22166500) Data Display (Figure B-1) is a solid-state raster-scan cathode-ray tube (CRT) display unit. The unit is designed for high quality resolution of dot-matrix alphanumeric characters or graphic plots. The CRT has a 12-inch (diagonal) screen with a 90° deflection angle. The screen is covered by a polarizing screen to enhance display resolution and reduce glare from reflected light. This document segment will provide information on installation, operation, and maintenance of the SD429.

B-1.2 Associated Documentation

This manual contains the information necessary to install, operate, and maintain the SD429 Data Display. The unit typically interfaces with the SD1700 (series) Digital Vibration Control Systems through the Real Time Display (RTD) card. Refer to the applicable system manuals for amplifying information related to the interfaces.

B-1.3 Physical Description

The SD429 Data Display is 14.5 inches (368mm) wide, 11.5 inches (292 mm) high and 13.7 inches (348 mm) deep and weighs 17 lb. 7.7 kg).

B-1.4 Accessories

The SD429 accessory kit consists of a connector-adaptor assembly, part number 10794400. A polarized power cord is provided as a part of the basic unit. This technical manual is also provided with the unit.

B-1.5 Specifications

The following specifications are applicable to the SD429 Video Display Unit:

Picture Tube	12" diagonal and 90° deflection
Phosphor	Amber (P134)
Video Input Signal	Composite video signal
Polarity	Negative sync.
Level	1.0 Vp-p
Impedance	75 Ω
Input Terminal	Phono pin jack
Scanning Frequency	
Horizontal	15.75 kHz (63.5 μ s)
Vertical	60 Hz (16.67 ms)
Video Bandwidth	30 Hz — 18 MHz ($\pm$ 3 dB)
Display Characters	80 characters with 25 lines 5 x 7 dot matrix (8 x 8 dot/cell)
Controls	
Inside	H. lin, V. height, V. lin, focus, sub brightness
Outside	brightness, contrast, H. hold, V. hold
Operating Ambient Temperature	0° C — +40° C
Power Supply	120 V 60 Hz
Power Consumption	28 W
Dimensions	368(W) x 292(H) x 348(D) mm
Weight	7.7 kg

B-1.6 OPTIONS

220 VAC Option (SD429-1)	22166600
Rack Mount Option (SD429-2)	22167200

B-2 INSTALLATION

B-2.1 Introduction

This section contains procedures for initial inspection, safety precautions, and installation steps for preparation for use. Shipping damage, in-warranty repairs, and methods for repacking the instrument for shipment are also discussed.

B-2.2 Initial Inspection

B-2.2.1 Unpacking

No special tools or procedures are required for unpacking the SD429; however, care must be taken when handling so as not to drop or otherwise cause damage to the unit. Conduct an inventory of all items listed on the packing list supplied with the shipping container. In the event of any shortage, or if shipping damage is apparent, file a claim with the carrier claims agent and forward a copy to Scientific-Atlanta. Save the packing and shipping container for possible reshipment of the equipment.

B-2.2.2 Physical Damage

Conduct a visual inspection of the SD429 for signs of physical damage. Photos of damage are recommended to substantiate any subsequent claim. The following list is provided as a basic guide for conducting a visual inspection:

1. Inspect the display for scratches, cracks, and CRT damage.
2. Check for proper mechanical operation of the controls.
3. Check accessories for signs of physical damage.

B-2.2.3 Packing for Reshipment

If the SD429 is to be reshipped, use the original shipping container and packing materials. If they are not available, the following materials are recommended for use:

1. A double-wall carton, test strength 350 pounds/Sq./in. The carton should be large enough to enclose the SD429 when surrounded by the packing materials listed in items 2, 3, and 4, below.
2. Heavy paper cardboard covering all instrument surfaces.
3. Polyurethane, bubble pack, or corrugated paperboard between the instrument projections and the carton inner wall.
4. At least four inches of shock-absorbing material such as extra firm polyurethane.

NOTE

The use of "flowable Styrofoam" packing material (i.e., "popcorn", "peanuts", shells", etc.) is a leading cause of damage to electronic equipment during shipping. Shipping damage to Scientific-Atlanta equipment using "flowable Styrofoam" packing material is chargeable to the company which improperly packed the equipment.

B-2.2.4 Warranty or Damage Claims

If the SD429 unit was physically damaged in shipment or does not operate as specified, immediately notify the carrier and the Scientific-Atlanta Spectral Dynamics Division Customer Service office or representative by calling 1-800-426-8887. The representative will arrange for repair or replacement of the system component.

NOTE

Be sure to contact the Spectral Dynamics Division, Customer Service Department, at 1-800-426-8887 to obtain a Returned Material Authorization (RMA) Number prior to returning any equipment.

Please attach a card to the component that shows the Returned Material Authorization Number, your company's name, address, person to contact, and telephone number. A short description of the damage or problem will also be helpful.

B-2.3 Safety Precautions

The SD429 presents no hazards to the operator if the equipment is operated according to the instructions in this manual.

B-2.3.1 Explosion Hazards

Do not operate this equipment in any area where flammable vapors may be present. Operating any AC-line powered instrument in such an environment can cause an explosion.

B-2.3.2 Shock/Burn Hazards

Dangerously high voltage and current sources are present inside the SD429 when AC power is applied. Jewelry or other metal objects, if allowed to contact the voltage and current sources in the SD429 can draw sufficient current to melt the jewelry causing severe burns.

B-2.3.3 Cooling

The SD429 uses the screen openings built into the case of the unit to provide for air circulation and cooling. Under normal use conditions, ventilation for operator comfort is sufficient for the SD429.

B-2.4 Preparation For Use

B-2.4.1 Power Requirements

The SD429 receives power from a standard (polarized) two-prong plug and any 115 volts AC, 60 Hz outlet.

B-2.4.2 Mounting

The SD429 may be provided as a rack mounted (SD429-2 configuration) or as a desk top version.

B-2.4.3 Installation Checkout

In order to conduct installation checkout, the instrument must be connected to a basic system. Perform the following steps:

1. Energize the SD429 with the PULL-ON/BRIGHT control. The Power On Indicator will illuminate.
2. Adjust the CONTRAST and BRIGHT controls as necessary to display the selected data.
3. If the screen is unstable, adjust H – HOLD and/or V – HOLD controls on the rear of the SD429 to stabilize the screen.
4. If problems occur during this checkout, refer to Operation Procedures in Section 3.

B-3 OPERATION

B-3.1 Introduction

This section provides information on the SD429 controls and procedures for proper operation.

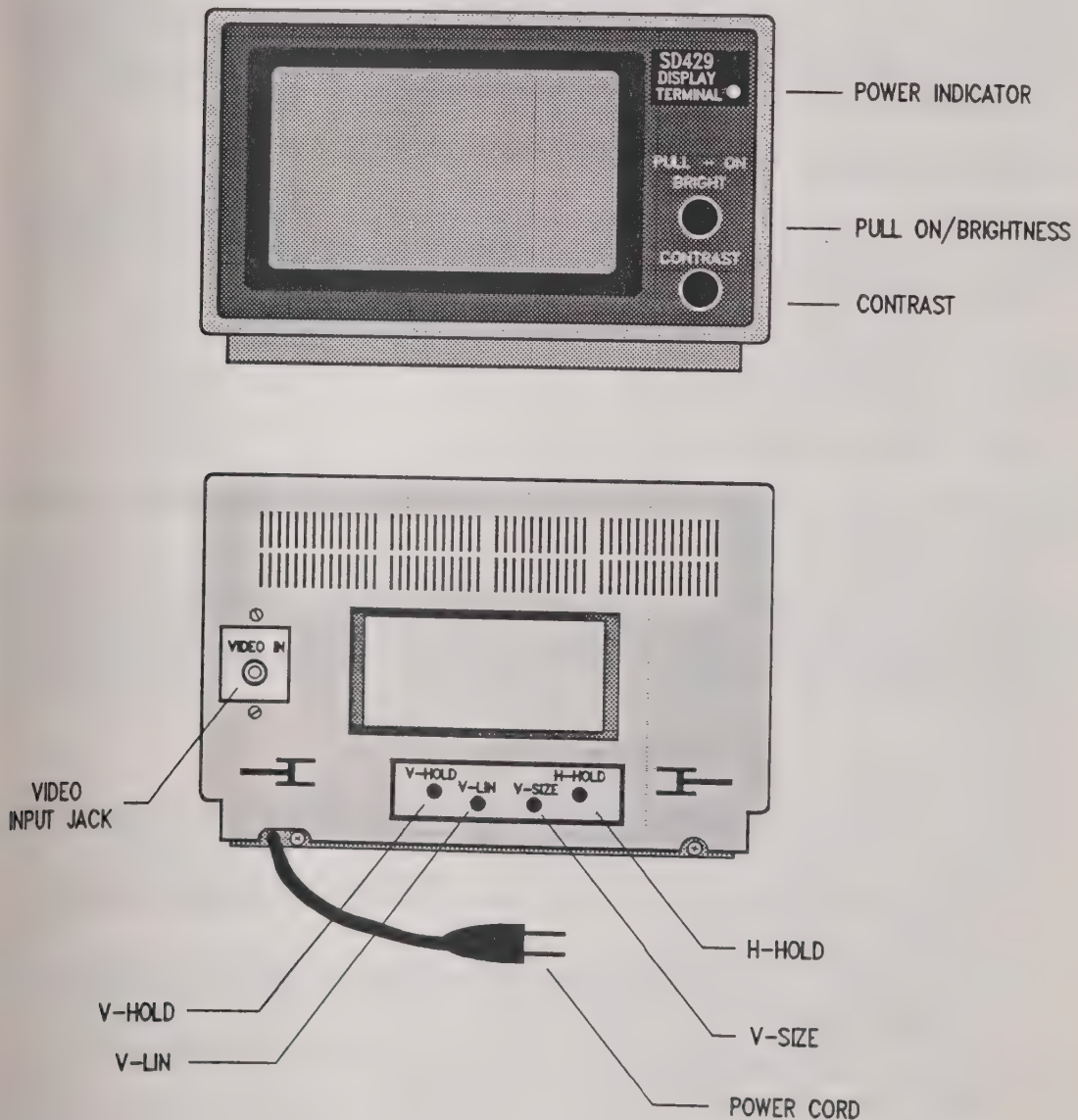


Figure B-1. SD429 Controls and Indicators.

B-3.2 Controls And Indicators

The controls and indicators shown in Figure B-1 are described in the following listings:

1. **Power Indicator** Illuminates orange to indicate that power is on.
2. **PULL-ON/BRIGHTness Knob** Turns the power on and off, and adjusts the brightness level. As the knob is pulled out, the power is turned on, allowing the picture to come on, and lighting the indicator lamp. The further Clockwise the knob is turned, the brighter the picture becomes. Adjustment is dependent upon ambient lighting conditions. Power is turned off when the knob is pushed back in.
3. **CONTRAST Control Knob** Contrast is adjusted by turning the CONTRAST control in a clockwise direction to increase contrast and CCW to decrease it.
4. **H – HOLD Control Knob** When stripes appear on the screen, turn the knob slowly in either direction until the stripes disappear and a normal picture appears.
5. **V – HOLD Control Knob** When picture rolls upward or downward, turn this knob slowly until it is steadied.
6. **V – LIN** This control will adjust the vertical linearity of the display screen
7. **V – SIZE** This control adjusts the vertical size or hieght of the displayed image.
8. **VIDEO Phono Pin Jack** The video output signal from a microcomputer should be fed to the VIDEO IN pin jacks. Use a BNC "T" connector when bridging a video signal between the SD429 and other equipment.

B-3.3 Connections

The following connections should be made with a microcomputer that has a video output impedance of 75 ohms.

1. One display and one microcomputer (Figure B-2)

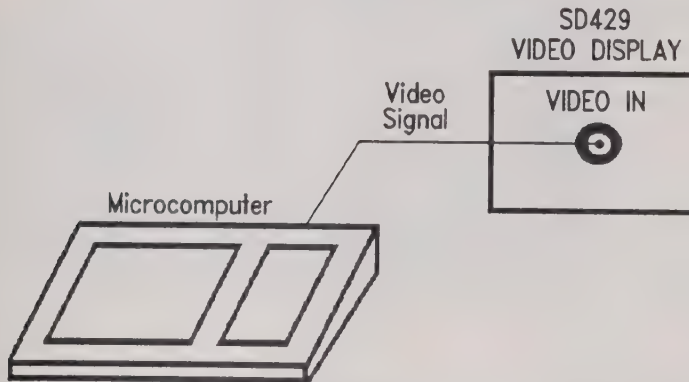


Figure B-2. One Display.

2. More than two displays and one microcomputer (Figure B-3)

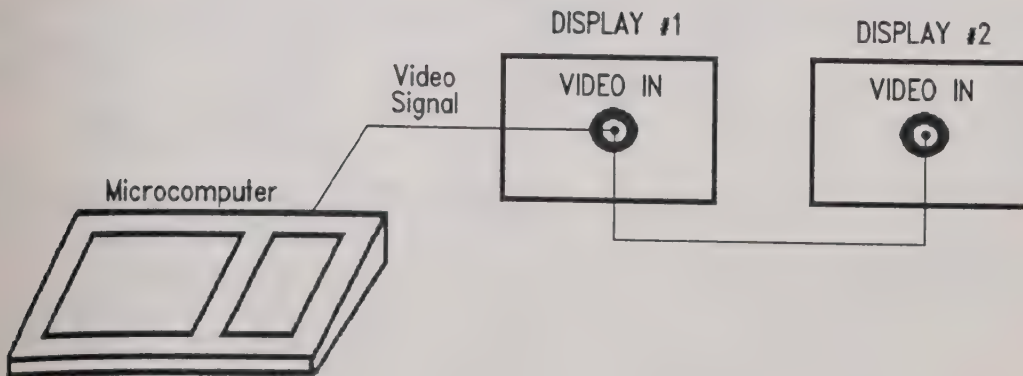


Figure B-3. Two or More Displays.

B-4 MAINTENANCE

B-4.1 Introduction

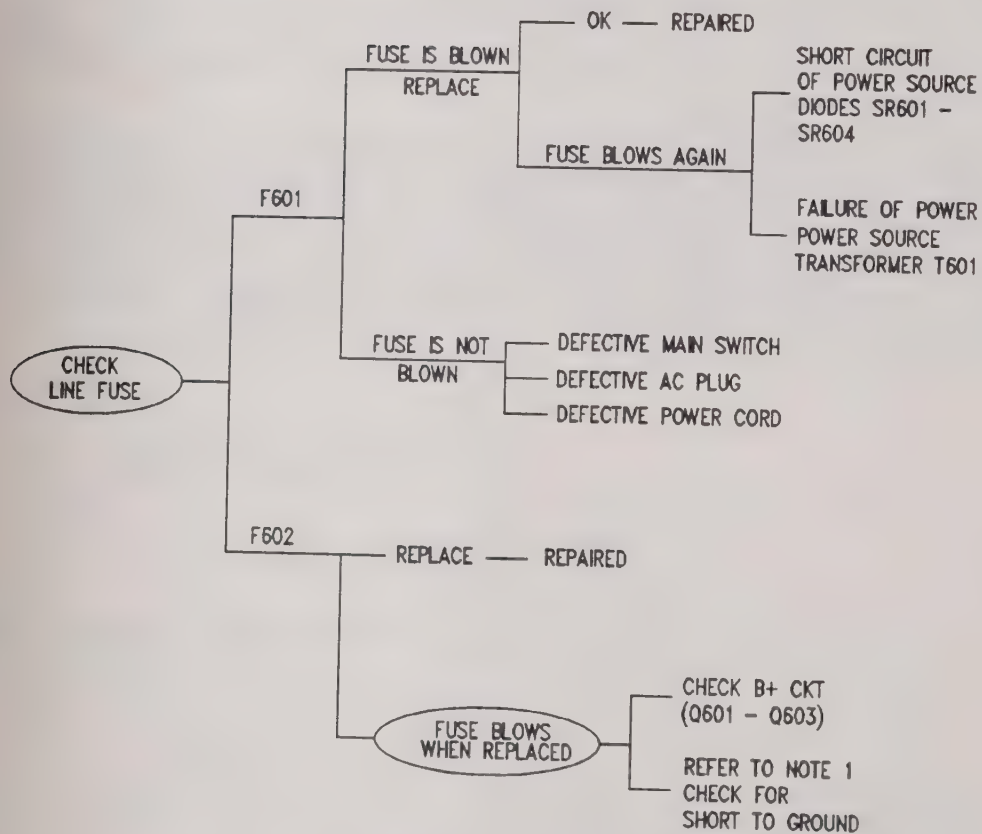
This section provides information related to the calibration and maintenance of the SD429.

The SD429 requires no field calibration. The adjustments noted in Section B-3.2 if properly accomplished, will suffice to provide an optimum display.

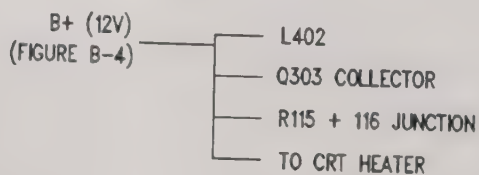
Periodic cleaning of the vent holes on the rear panel is all that is required for scheduled maintenance.

In the event of hardware failure in the SD429, contact the service facility of Scientific-Atlanta at telephone (800)-426-8887. If this is not practicable, use the following troubleshooting procedures and charts reproduced from the OEM manual to isolate the failure to a specific circuit and/or component. When using the troubleshooting charts, refer to the schematic diagrams in Figure B-4 to locate components and test points.

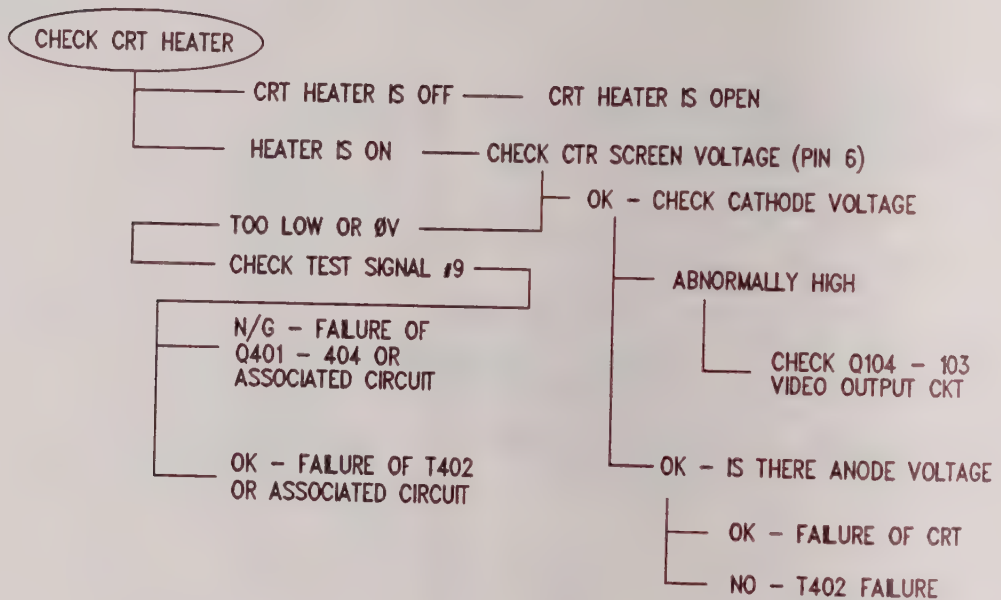
B-4.2 No Power Indicator or Raster.



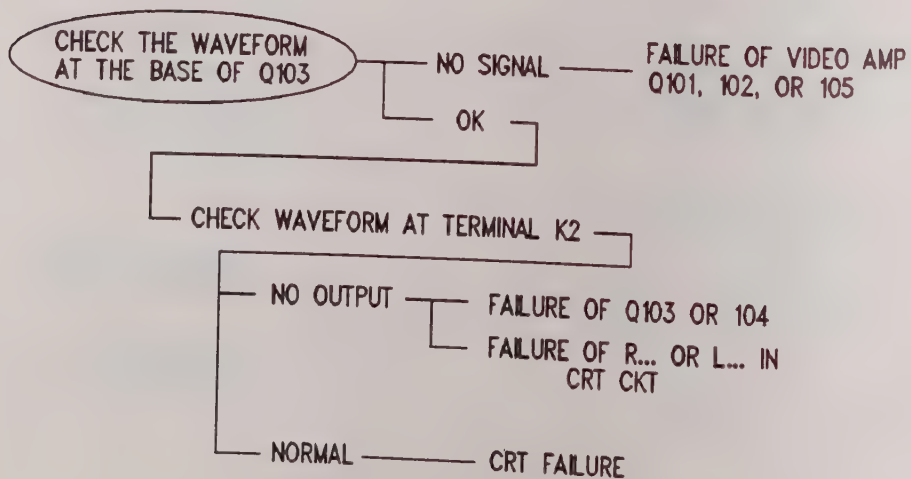
NOTE 1: SUPPLY SOURCE OF DC VOLTAGE B+ (+12V)

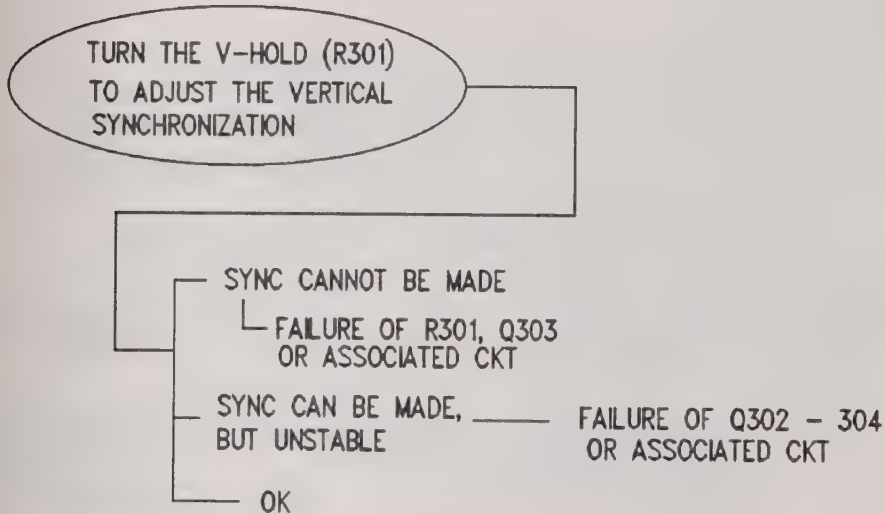
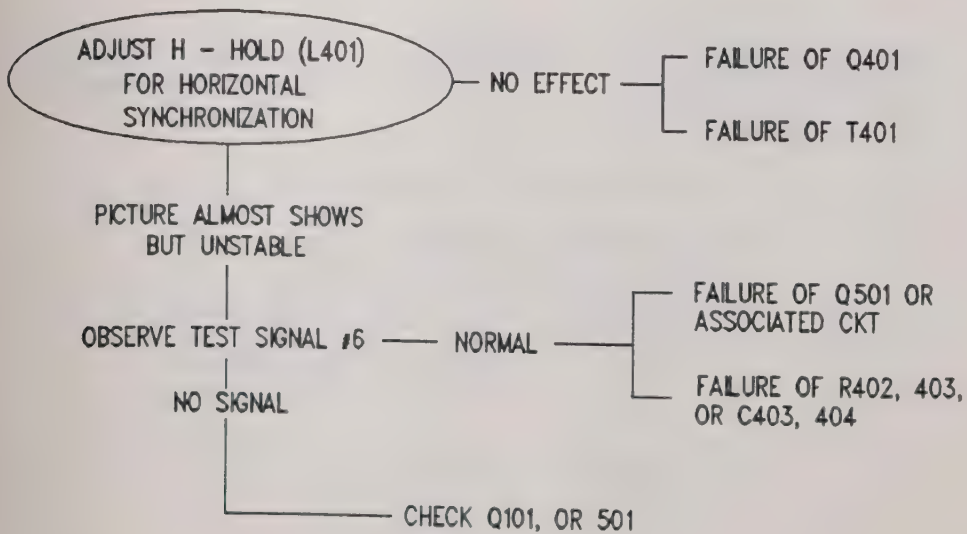


B-4.3 The Power Indicator is Illuminated, but There is no Raster and B+ is present.

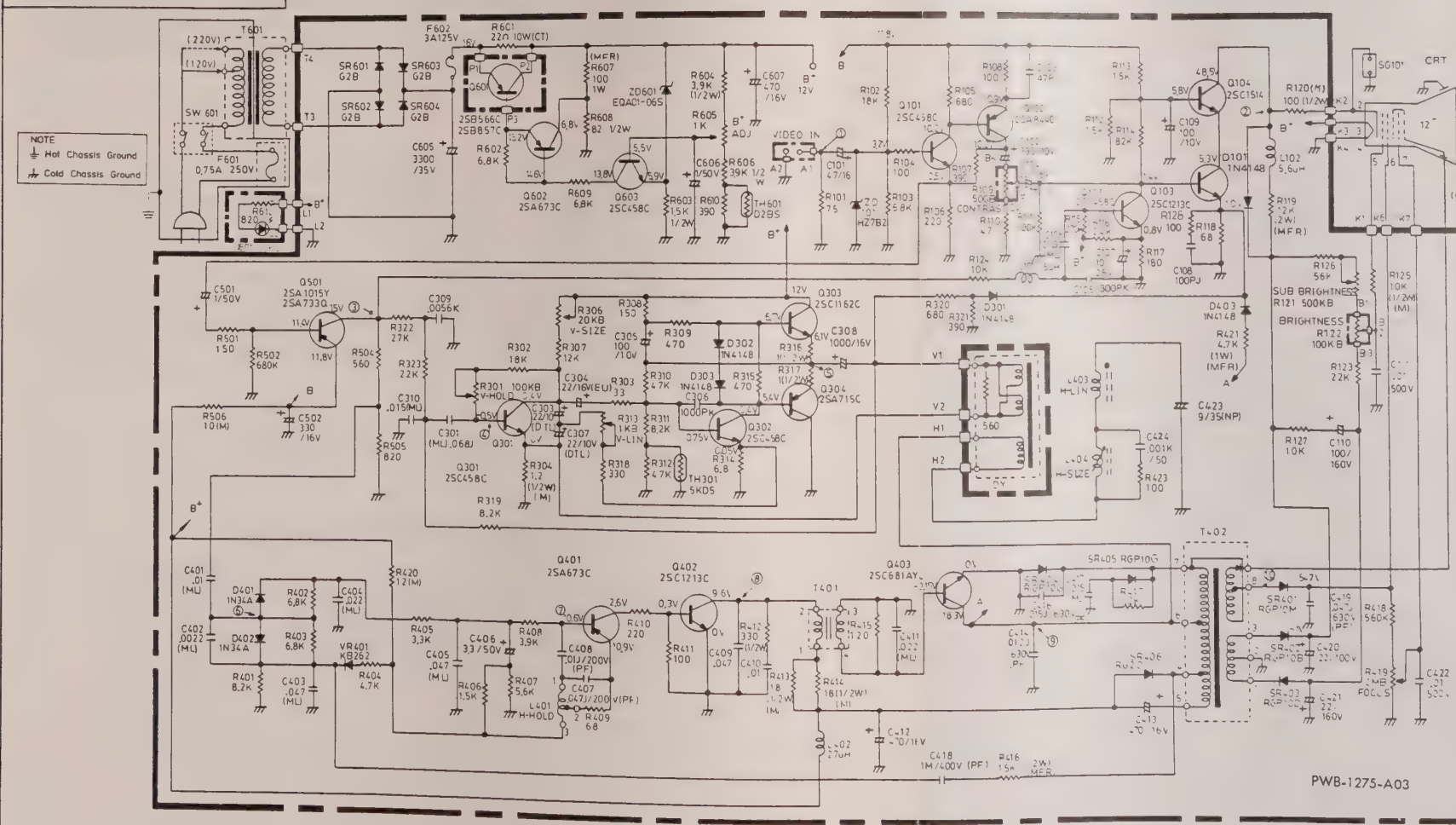


B-4.4 Raster is Normal, but no Picture or Data Display.



B-4.5 Vertical Synchronization Cannot be Made.**B-4.6 Horizontal Synchronization Cannot be Made.**

AMDEK SCHEMATIC DIAGRAM
MODEL: VIDEO-300/VIDEO-300A



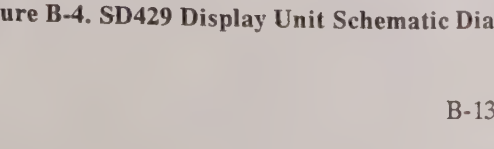
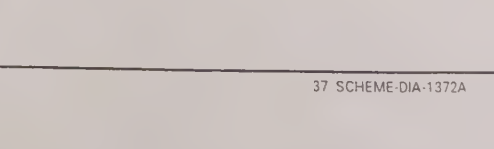
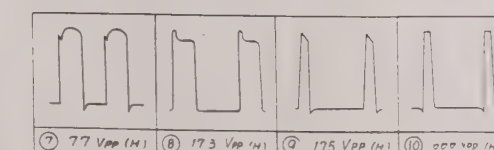
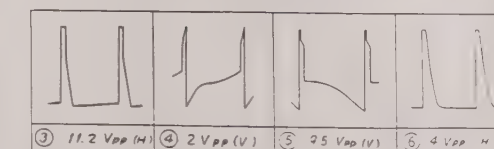
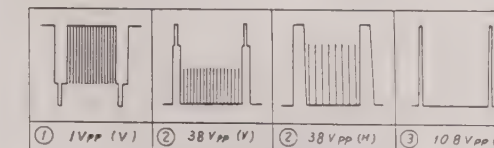
NOTE
Hot Chassis Ground
Cold Chassis Ground

CRITICAL COMPONENT WARNING

These critical components that are shaded on the schematic diagram and asterisked on the parts list are used to prevent shock, fire hazard and excessive X-radiation. All these special components must be replaced only with the same type identical to those in the schematic diagram and parts list.

NOTE

- All resistor values are in ohms, K = 1000, M = 1000000.
Unspecified : Carbon film, $\pm 5\%$ 1/4W
(M) : Carbon Solid, $\pm 5\%$, unspecified $\pm 10\%$
(MFR) : Metal film, $\pm 5\%$
(CT) : Cement wire-wound, $\pm 5\%$
- All Capacitors are in μF , P represents pF
Unspecified : Ceramic, $\pm 80\%$ (NPI) Elyc. Non-polar, $\pm 10\%$
J: $\pm 5\%$, K: $\pm 10\%$ Elyc. $< 4.7\mu\text{F}$ $\pm 75\%$, others $\pm 50\%$
(ML) : Mylar, J: $\pm 5\%$ unspecified: $\pm 10\%$
(PF) : Polypropylene, J: $\pm 5\%$ M: $\pm 20\%$ unspecified: $\pm 10\%$
(DTL) : Tantalum, $\pm 20\%$
- This circuit diagram is original one, therefore there may be a slight difference from your set.
- All marked voltage are taken under 1.0 Vp-p video input (0.3 Vp-p sync.).



37 SCHEME-DIA-1372A

Figure B-4. SD429 Display Unit Schematic Diagram.

B-5 REPLACEMENT PARTS

B-5.1 Introduction

This section provides information pertaining to the identification and ordering of repairable and replacement parts and assemblies of the SD429 Data Display. . When ordering a replacement part or assembly, be sure to provide a complete description including equipment model number, serial number and applicable options, along with the part or assembly number and reference number.

B-5.2 Parts List

Table B-1 is reprinted from the OEM manual and is presented in order to provide the Scientific-Atlanta customer with the best possible information package related to the SD429 Data Display. Parts are listed in component order, starting with transistors and concluding with miscellaneous parts . In each component category, Table B-1 notes the circuit symbol number of the individual part, the AMDEK Part Number, a description of the part, and the total quantity used. Refer to the schematic diagrams in B5-4 and B5-5 when identifying parts by symbol number. These components must be ordered from AMDEK at the following address:

2201 Lively Blvd., Elk Grove
Village, Illinois 60007
(312) 364-1180 ; TLX:25-4786

CRITICAL COMPONENT WARNING

Those components that are shaded on the diagram and marked with an asterisk "*" on the parts list are used to prevent shock, fire hazard and excessive X-radiation. All of these special components must be replaced with parts which are identical to those in the schematic diagram and the parts list.

Table B-1. SD429 Parts List.

ELECTRICAL PARTS LIST ON MAIN PC BOARD

Symbol	Description	Part Code	Remarks
TRANSISTORS			
Q101	2SC458C	(62) ST-2SC458C	
Q102	2SA844D	(09) ST-2SA844D	
Q103	2SC1213C	(28) ST-2SC1213C	
Q104	2SC1514	(89) ST-2SC1514	
Q105	2SC458C	(62) ST-2SC458C	
Q301	2SC458C	(62) ST-2SC458C	
Q302	2SC458C	(62) ST-2SC458C	
Q303	2SC1162C	(63) ST-2SC1162C	
Q304	2SA715C	(73) ST-2SA715C	
Q401	2SA673C	(27) ST-2SA673C	
Q402	2SC1213C	(28) ST-2SC1213C	
Q403	2SC681AYL	(15) ST-2SC681AYL	
Q501	2SA1015Y or 2SA733Q	(88) ST-2SA1015Y (85) ST-2SA733Q	
DIODES			
D101	1N4148	(76) SD-1N4148 (AU)	
D301	1N4148	(76) SD-1N4148 (AU)	
D302	1N4148	(76) SD-1N4148 (AU)	
D303	1N4148	(76) SD-1N4148 (AU)	
D401	1N34A	(59) SD-1N34A (AU)	
D402	1N34A	(59) SD-1N34A (AU)	
D403	1N4148	(76) SD-1N4148 (AU)	
SR401	RGP-10M	(09) REC-SI-1023 (AU)	
SR402	RGP-10B	(57) RECI-SI-1005 (AU)	
SR403	RGP-10D	(40) RECI-SI-1002 (AU)	
SR404	RGP-10G	(87) RECI-SI-154 (AU)	
SR405	RGP-10G	(87) RECI-SI-154 (AU)	
SR406	RG-2D	(38) RECI-SI-1053	
SR601	G2B	(22) RECI-SI-1003	
SR602	G2B	(22) RECI-SI-1003	
SR603	G2B	(22) RECI-SI-1003	
SR604	G2B	(22) RECI-SI-1003	
VR401	KB262	(81) SV-KB262	

Symbol	Description	Part Code	Remarks
ZD101	HZ7B2	(04) SZ-HZ7B2	
DZ601	EQA0106S	(25) RECI-SI-175 (AU)	
THERMISTORS			
TH301	5KD5	(51) SH-5KD5	
TH601	D2BS	(20) SH-D2BS	
RESISTORS			
R101	Carbon film, $\frac{1}{4}$ W 75 ohm $\pm 5\%$	(38) $\frac{1}{4}$ P-750J (AU)	
R102	Carbon film, $\frac{1}{4}$ W 18K ohm $\pm 5\%$	(86) $\frac{1}{4}$ P-183J (AU)	
R103	Carbon film, $\frac{1}{4}$ W 6.8K ohm $\pm 5\%$	(42) $\frac{1}{4}$ P-682J (AU)	
R104	Carbon film, $\frac{1}{4}$ W 100 ohm $\pm 5\%$	(06) $\frac{1}{4}$ P-101J (AU)	
R105	Carbon film, $\frac{1}{4}$ W 680 ohm $\pm 5\%$	(58) $\frac{1}{4}$ P-681J (AU)	
R106	Carbon film, $\frac{1}{4}$ W 220 ohm $\pm 5\%$	(12) $\frac{1}{4}$ P-221J (AU)	
R107	Carbon film, $\frac{1}{4}$ W 390 ohm $\pm 5\%$	(80) $\frac{1}{4}$ P-391J (AU)	
R108	Carbon film, $\frac{1}{4}$ W 100 ohm $\pm 5\%$	(06) $\frac{1}{4}$ P-101J (AU)	
R110	Carbon film, $\frac{1}{4}$ W 47 ohm $\pm 5\%$	(46) $\frac{1}{4}$ P-470J (AU)	
R111	Carbon film, $\frac{1}{4}$ W 100 ohm $\pm 5\%$	(47) $\frac{1}{4}$ P-104J (AU)	
R112	Carbon film, $\frac{1}{4}$ W 1.5 ohm $\pm 5\%$	(55) $\frac{1}{4}$ P-152J (AU)	
R113	Carbon film, $\frac{1}{4}$ W 1.5K ohm $\pm 5\%$	(55) $\frac{1}{4}$ P-152J (AU)	
R114	Carbon film, $\frac{1}{4}$ W 82K ohm $\pm 5\%$	(86) $\frac{1}{4}$ P-823J (AU)	
R115	Carbon film, $\frac{1}{4}$ W 270K ohm $\pm 5\%$	(72) $\frac{1}{4}$ P-274J (AU)	
R116	Carbon film, $\frac{1}{4}$ W 2.4K ohm $\pm 5\%$	(57) $\frac{1}{4}$ P-242J (AU)	
R117	Carbon film, $\frac{1}{4}$ W 180 ohm $\pm 5\%$	(29) $\frac{1}{4}$ P-181J (AU)	
R118	Carbon film, $\frac{1}{4}$ W 68 ohm $\pm 5\%$	(08) $\frac{1}{4}$ P-680J (AU)	
R119	Metal film, 2W 1.2K ohm $\pm 5\%$	(41) 2PHU-122J-H	
R120	Carbon Comp, $\frac{1}{2}$ W 100 ohm $\pm 25\%$	(42) $\frac{1}{2}$ M-101J (AU)	
R121	Semi-fixed, $\frac{1}{5}$ W 500K ohm B $\pm 20\%$	(02) VR-SF-1096	Sub-Bright
R123	Carbon film, $\frac{1}{4}$ W 22K ohm $\pm 5\%$	(69) $\frac{1}{4}$ P-223J (AU)	
R124	Carbon film, $\frac{1}{4}$ W 10K ohm $\pm 5\%$	(63) $\frac{1}{4}$ P-103J (AU)	
R125	Carbon Comp, $\frac{1}{2}$ W 10K ohm $\pm 25\%$	(18) $\frac{1}{2}$ MF-103J	
R126	Carbon film, $\frac{1}{4}$ W 56K ohm $\pm 25\%$	(66) $\frac{1}{4}$ P-563J (AU)	
R127	Carbon film, $\frac{1}{4}$ W 10K ohm $\pm 5\%$	(63) $\frac{1}{4}$ P-103J (AU)	
R128	Carbon film, $\frac{1}{4}$ W 100 ohm $\pm 5\%$	(06) $\frac{1}{4}$ P-101J (AU)	
R301	Rotary-Var, $\frac{1}{5}$ W 100K ohm B $\pm 20\%$	(38) VRB-R-1154	V-HOLD
R302	Carbon film, $\frac{1}{4}$ W 18 ohm $\pm 5\%$	(86) $\frac{1}{4}$ P-183J (AU)	
R303	Carbon film, $\frac{1}{4}$ W 33 ohm $\pm 5\%$	(25) $\frac{1}{4}$ P-330J (AU)	
R304	Carbon Comp, $\frac{1}{2}$ W 1.2 ohm $\pm 5\%$	(09) $\frac{1}{2}$ P-1R2J (AU)	
R306	Semi-fixed, $\frac{1}{5}$ W 20K ohm $\pm 20\%$	(14) VR-SF-1120	V-SIZE
R307	Carbon film, $\frac{1}{4}$ W 12K ohm $\pm 5\%$	(81) $\frac{1}{4}$ P-123J (AU)	
R308	Carbon film, $\frac{1}{4}$ W 150 ohm $\pm 5\%$	(71) $\frac{1}{4}$ P-151J (AU)	
R309	Carbon film, $\frac{1}{4}$ W 470 ohm $\pm 5\%$	(07) $\frac{1}{4}$ P-471J (AU)	
R310	Carbon film, $\frac{1}{4}$ W 47K ohm $\pm 5\%$	(64) $\frac{1}{4}$ P-473J (AU)	
R311	Carbon film, $\frac{1}{4}$ W 8.2K ohm $\pm 5\%$	(13) $\frac{1}{4}$ P-822J (AU)	
R312	Carbon film, $\frac{1}{4}$ W 4.7K ohm $\pm 5\%$	(80) $\frac{1}{4}$ P-472J (AU)	

Symbol	Description	Part Code	Remarks
R313	Semi-fixed, $\frac{1}{5}W$ 1K ohm $\pm 20\%$	(11) VR-SF-1121	V-LIN
R314	Carbon film, $\frac{1}{4}W$ 6.8K ohm $\pm 5\%$	(84) $\frac{1}{4}P$ -6R8J (AU)	
R315	Carbon film, $\frac{1}{4}W$ 470 ohm $\pm 5\%$	(07) $\frac{1}{4}P$ -471J (AU)	
R316	Carbon film, $\frac{1}{2}W$ 1 ohm $\pm 5\%$	(40) $\frac{1}{2}P$ -1ROJ (AU)	
R317	Carbon film, $\frac{1}{2}W$ 1 ohm $\pm 5\%$	(03) $\frac{1}{2}P$ -1ROJ	
R318	Carbon film, $\frac{1}{4}W$ 330 ohm $\pm 5\%$	(75) $\frac{1}{4}P$ -331J (AU)	
R319	Carbon film, $\frac{1}{4}W$ 8.2K ohm $\pm 5\%$	(13) $\frac{1}{4}P$ -822J (AU)	
R320	Carbon film, $\frac{1}{4}W$ 680 ohm $\pm 5\%$	(58) $\frac{1}{4}P$ -681J (AU)	
R321	Carbon film, $\frac{1}{4}W$ 390 ohm $\pm 5\%$	(80) $\frac{1}{4}P$ -391J (AU)	
R322	Carbon film, $\frac{1}{4}W$ 27K ohm $\pm 5\%$	(88) $\frac{1}{4}P$ -273J (AU)	
R323	Carbon film, $\frac{1}{4}W$ 22K ohm $\pm 5\%$	(69) $\frac{1}{4}P$ -223J (AU)	
R401	Carbon film, $\frac{1}{4}W$ 8.2K ohm $\pm 5\%$	(13) $\frac{1}{4}P$ -822J (AU)	Focus J.
R402	Carbon film, $\frac{1}{4}W$ 6.8K ohm $\pm 5\%$	(42) $\frac{1}{4}P$ -682J (AU)	
R404	Carbon film, $\frac{1}{4}W$ 4.7K ohm $\pm 5\%$	(80) $\frac{1}{4}P$ -472J (AU)	
R405	Carbon film, $\frac{1}{4}W$ 3.3K ohm $\pm 5\%$	(59) $\frac{1}{4}P$ -332J (AU)	
R406	Carbon film, $\frac{1}{4}W$ 1.5K ohm $\pm 5\%$	(55) $\frac{1}{4}P$ -152J (AU)	
R407	Carbon film, $\frac{1}{4}W$ 5.6K ohm $\pm 5\%$	(82) $\frac{1}{4}P$ -562J (AU)	
R408	Carbon film, $\frac{1}{4}W$ 3.9K ohm $\pm 5\%$	(64) $\frac{1}{4}P$ -392J (AU)	
R409	Carbon film, $\frac{1}{4}W$ 68 ohm $\pm 5\%$	(08) $\frac{1}{4}P$ -680J (AU)	
R410	Carbon film, $\frac{1}{4}W$ 220 ohm $\pm 5\%$	(12) $\frac{1}{4}P$ -221J (AU)	
R411	Carbon film, $\frac{1}{4}W$ 100 ohm $\pm 5\%$	(06) $\frac{1}{4}P$ -101J (AU)	
R412	Carbon film, $\frac{1}{2}W$ 330 ohm $\pm 5\%$	(87) $\frac{1}{2}P$ -331J (AU)	
R413	Carbon Comp, $\frac{1}{2}W$ 18 ohm $\pm 5\%$	(67) $\frac{1}{2}P$ -180J	
R414	Carbon Comp, $\frac{1}{2}W$ 18 ohm $\pm 5\%$	(67) $\frac{1}{2}P$ -180J	
R415	Carbon film, $\frac{1}{4}W$ 120 ohm $\pm 5\%$	(24) $\frac{1}{4}P$ -121J (AU)	
R416	Metal film, 2W 1.5K ohm $\pm 5\%$	(88) 2PHU-152J (AU)	
R417	Carbon film, $\frac{1}{4}W$ 12K ohm $\pm 5\%$	(81) $\frac{1}{4}P$ -123J (AU)	
R418	Carbon film, $\frac{1}{4}W$ 12K ohm $\pm 5\%$	(81) $\frac{1}{4}P$ -123J (AU)	
R419	Rotary Var., 2M ohm B $\pm 20\%$	(71) VR-SF-1097	
R420	Carbon Comp, $\frac{1}{4}W$ 12 ohm $\pm 10\%$	(32) $\frac{1}{4}M$ -120K	
R421	Metal film, 1W 4.7K ohm $\pm 5\%$	(26) 1PHU-472J-H	
R422	not used		
R423	Carbon film, $\frac{1}{4}W$ 100 ohm $\pm 5\%$	(06) $\frac{1}{4}P$ -101J (AU)	
R501	Carbon film, $\frac{1}{4}W$ 110 ohm $\pm 5\%$	(71) $\frac{1}{4}P$ -151J (AU)	B + Adj.
R502	Carbon film, $\frac{1}{4}W$ 680 ohm $\pm 5\%$	(10) $\frac{1}{4}P$ -684J (AU)	
R503	not used		
R504	Carbon film, $\frac{1}{4}W$ 560 ohm $\pm 5\%$	(09) $\frac{1}{4}P$ -561J (AU)	
R505	Carbon film, $\frac{1}{4}W$ 820 ohm $\pm 5\%$	(29) $\frac{1}{4}P$ -821J (AU)	
R506	Carbon Comp, $\frac{1}{4}W$ 10 ohm $\pm 5\%$	(14) $\frac{1}{4}M$ -100K	
R*601	Cement, 10W 22 ohm $\pm 5\%$	(79) 10LCU-220J-W	
R602	Carbon film, $\frac{1}{4}W$ 6.8K ohm $\pm 5\%$	(42) $\frac{1}{4}P$ -682J (AU)	B + Adj.
R603	Carbon film, $\frac{1}{2}W$ 1.5K ohm $\pm 5\%$	(67) $\frac{1}{2}P$ -152J (AU)	
R*604	Carbon film, $\frac{1}{2}W$ 3.9K ohm $\pm 5\%$	(76) $\frac{1}{2}P$ -392J (AU)	
R*605	Semi-fixed, $\frac{1}{5}W$ 1K ohm $\pm 5\%$	(05) VR-SF-309	
R*606	Carbon film, $\frac{1}{2}W$ 3.9K ohm $\pm 5\%$	(76) $\frac{1}{2}P$ -392J (AU)	
R607	Metal film, 1W 100 ohm $\pm 5\%$	(41) 1PHU-101J-H	

Symbol	Description	Part Code	Remarks
R608	Carbon film, $\frac{1}{2}W$ 82 ohm 5%	(80) $\frac{1}{2}P$ -820J (AU)	
R609	Carbon film, $\frac{1}{4}W$ 6.8K ohm 5%	(42) $\frac{1}{4}P$ -682J (AU)	
R*610	Carbon film, $\frac{1}{4}W$ 390 ohm $\pm 5\%$	(80) $\frac{1}{4}P$ -391J (AU)	
R611	not used		
R612	Carbon film, $\frac{1}{4}W$ 820 ohm $\pm 5\%$	(29) $\frac{1}{4}P$ -821J (AU)	

CAPACITORS

C101	Elyc, 16V 47 μ F + 50%, -10%	(22) CUF-1.6-472Y
C102	Elyc, IOV 330 μ F + 50%, -10%	(50) CUF-1-331Y
C103	Ceramic, 50V 47pF $\pm 5\%$	(82) DSLX-5-478J
C104	Elyc, 16V 22 μ F + 50%, - 10	(69) CUF-1.6-222Y
C105	Ceramic, 50V 300pF $\pm 10\%$	(15) DX-5-307K
C106	Polyster, 50V 0.033 μ F $\pm 10\%$	(65) ML-5-335K
C107	Elyc, 25V 10 μ F + 50%, -10%	(25) CUF-2.5-102Y
C108	Ceramic, 50V 100pF $\pm 5\%$	(12) DSLX-5-107J
C109	Elyc, 10V 100 μ F + 50%, -10%	(60) CUF-1-1101Y
C101	Elyc, 160V 100 μ F + 50%, -10%	(23) CUF-16-101Y
C101	Ceramic, 500V .01 μ F + 80%, -20%	(02) DX-50-105P
C301	Polyster, 50V .068 μ F $\pm 5\%$	(66) ML-5-685J
C302	not used	
C303	Tantal, 10V 22 μ F $\pm 20\%$	(60) DTLL-1-222M
C304	EU.Type Elyc, 16V 22pF $\pm 20\%$	(89) EU-1.6-222M
C305	Elyc, 10V 100 μ F + 50%, - 10%	(60) CUF-1-101Y
C306	Ceramic, 50V 1000pF $\pm 10\%$	(55) DX-5-106K
C307	Tantal, 10V 22 μ F $\pm 20\%$	(60) DTLL-1-222M
C308	Elyc, 16V 1000 μ F + 50%, - 20%	(28) CUF-1.6-100Y
C309	Ceramic, 50V 0.0056 μ F $\pm 10\%$	(58) DX-5-566K
C310	Polyester, 50V 0.015 μ F $\pm 10\%$	(61) ML-5-155K
C401	Polyster, 50V 0.01 μ F $\pm 10\%$	(83) ML-5-105K
C402	Polyster, 50V 0.01 μ F $\pm 10\%$	(75) ML-5-226K
C403	Polyster 50V 0.047 μ F $\pm 10\%$	(86) M L-5-475K
C404	Polyster, 50V 0.022 μ F $\pm 10\%$	(02) ML-5-225K
C405	Polyster, 50V 0.047 μ F $\pm 10\%$	(86) ML-5-475K
C406	Elyc, 50V 3.3 μ F + 75%, - 10%	(25) CUF-5-333H
C407	Polypropylene, 200V 0.047 μ F $\pm 5\%$	(33) PFA-20-475J
C408	Polypropylene, 200V 0.01 μ F $\pm 5\%$	(32) PFA-20-105J
C409	Ceramic, 50V 0.047 μ F + 80%, -20%	(52) DX-5-475Z
C410	Ceramic, 500V 0.01 μ F + 80%, -20%	(02) DX-50-105P
C411	Polyster, 50V 0.022 μ F $\pm 10\%$	(02) ML-5-225K
C412	Elyc, 16V 470 μ F + 50%, - 10%	(44) CUF-1.6-471Y
C413	Elyc, 16V 470 μ F + 50%, - 10%	(44) CUF-1.6-471Y
C*414	Polypropylene 630V 0.012 μ F $\pm 5\%$	(32) PFA-63-125J
C415	not used	
C*416	Polypropylene 630V 0.015 μ F $\pm 5\%$	(61) PFB-63-155J
C417	Polyester 50V 0.015 μ F $\pm 10\%$	(61) ML-5-155K
C418	Polypropylene 400V 0.1 pF $\pm 20\%$	(43) PFC-40-104M
C419	Polypropylene 630V 0.047 μ F $\pm 5\%$	(66) PFB-63-475J
C420	Elyc, 100V 22pF + 50%, -10%	(83) CUF-10-222Y
C421	Elyc, 160V 22 μ F + 50%, -10%	(37) COF-16-222Y

Symbol	Description	Part Code	Remarks
C422	Ceramic, 500V 0.01pF +80%, -20%	(02) DX-50-105P	
C423	Elyc, non-polar 35V 9 μ F $\pm$ 5% or 10%	(44) NP-3.5-903J	
C424	Ceramic, 50V 1000pF $\pm$ 5% or 10%	(55) DX-5-106K	
C501	Elyc, 50V 1 μ F +75%, -10%	(35) CUF-5-103H	
C502	Elyc, 16V 330 μ F +50%, -10%	(53) CUF-1.6-331Y	
C605	Elyc, 35V 3300 μ F +50% -10%	(11) CU-3.5-330Y	
C606	Elyc, 50V 1 μ F +75% -10%	(35) CUF-5-103H	
C607	Elyc, 16V 470 μ F +50% -10%	(44) CUF-1.6-471Y	

COILS

L101	Peaking, 15 $\pm$ 10%	(88) PLKA-150K	
L102	Peaking, 5.6 $\pm$ 10%	(17) PLKA-5R6K	
L401	Horizontal Osc.	(09) COIL-H-HOLD-539	H-HOLD
L402	Filter, 27 $\pm$ 10%	(29) CHOKE-IF-280	
L403	H-Linear Coil	(14) COIL-H-LINE-1019	H-LIN
L404	H-SIZE Coil	(57) COIL.H.SIZE.1004	H.SIZE

TRANSFORMERS

T401	H DRIVE	(88) TRNS-H-OPT-236	
T*402	FBT	(50) TRNS-FB-2006	

FUSES

F*601	0.75A 250V UL	(82) FUSE-1009	
F*602	3A 125V UL	(13) FUSE-1048	

ELECTRICAL PARTS ON CHASSIS

CRT	200, 90° defl. P31	(Green) (Amber)	(84) CRT-CE745Z12P31VR CE745Z12C134VR
PWB	MAIN PCB/LED PCB		(32) PW/B-1275
*DY	Deflection yoke		(76) COIL-DEF-1057
*T601	POWER Transformer		(21) TRNS-POWER-3003
*SW601	POWER ON/OFF/Brightness		(46) SW-R-1021
R122	Rotary Var. $\frac{1}{5}$ W 100K ohm B $\pm$ 20%		
R109	CONTRAST rotary Var. $\frac{1}{5}$ W 500 ohm B $\pm$ 20%		(12) VRB-R-1150

TRANSISTOR

Q601	2SB566C or 2SB857C	(80) ST-2SB566C (36) ST-2SB857C	
D601	LED	(54) SP-RT5-521G	
XQ601	Heat Sink Screws	(53) RAD-P-1093 (54) 3NA-S (63) 3P + 10S	
SG101	Spark Gap AG.20	(24) SPARK-AG-20MKT	

Symbol	Description	Part Code	Remarks
	Socket CRT socket	(53) SD-052	
	AC Cord (28) CORD.AC.052B		
SOCKETS			
P	"P" mark, with wiring 3P	(59) SO-076A-236	Q601
V	"V" mark, with wiring 2P	(81) SO-076A-235	V.DY
H	"H" mark, with wiring 2P	(14) SO-076A-234	H.DY
S	"S" mark, with wiring 2P	(36) SO-076A-233	Signal
B	"B" mark, with wiring 6P	(39) SO-099A-023	CONT/BRD
L	"L" mark, with wiring 2P	(63) SO-1115-015	LED
E1	Chassis Ground Tip with wiring	(61) TIP-002	
E2	CRT Ground Tip with wiring	(61) TIP-002	

Symbol	Description	Part Code	Qty	Remarks
MECHANICAL PARTS LIST				
1	Power indicator LED	(D601) (54) SP-LT-233G	1	@ =
2	Power ON.OFF/Bright Knob	(12) KNOB-1008-BLK	1	ELECT.
3	Contrast Knob	(12) KNOB-1008-BLK	1	PARTS.
4	Rear Cabinet	(12) CAB-B-1169	1	
5	Front Cabinet	(22) CAB-A-1169	1	
6	Heat Sink (XQ601)	(53) RAD-P-1093	1	@
7	Power Transformer (T601)	(21) TRNS-POWER-3003	1	@
8	Transformer Bracket	(34) ANG-FIX-1169	1	
9	CRT Earth	(60) EARTH-P-1003	1	
10	SilkScreen	(50) SHADE-P-1001	1	
11	Display tube (CRQ	(84) CRT-CE745Z12P31VR	1	@
12	Voltage selecting lug	(69) LUG-1059	1	
13	Deflection yoke (DY)	(76) COIL-DEF-1057	1	@
14	LED PCB (PWB)	(32) PWB-1275	1	@
15	Signal Input Board	(77) LUG-ANT-1036	1	
16	Power switch bracket	(82) ANG.FIX.1170	1	
17	Screws (CAP UPPER)	(35) TA4T + 20S(B)	2	
18	Screws (LUG-ANT-1036)	(63) 3P + 10S	2	
19	Screws (CAB BOTTOM)	(41) SRW-SPE-1219	2	
20	Screws (CRT FIX)	(35) TA4T + 20S(B)	4	
	Washer (CRT FIX)	(04) 4.5W15-1.2S	4	
21	Screws (LED PCB FIX)	(61) TB3P + 8S	2	
22	Screws (ANG-FIX-1170)	(64) TB3.5V + 10S	2	
23	Screws (ANG-FIX-1169)	(07) SRW-SPE-1213	4	
24	Cord Clamp	(47) STOP-CARD-026	1	
25	Signal Board Bracket (LUG-ANT-1036)	(11) ANG-ANT-1013	1	
26	Voltage selecting label	(88) LABEL-1705	1	
27	Model label	(72) LABEL-1706A	1	
28	Chassis label	(48) LABEL-1707	2	
29	Serviceman label	(22) LABEL-1731	1	
30	Serial label	(50) LABEL-1784	1	
31	Owner's manual	(08) INS-E-1271	1	
32	Schematic diagram	(03) SCHEME-DIA-1248	1	
33	Screws (TRNS-POWER-3003)	(26) SRW-SPE-1209	4	

Symbol	Description	Part Code	Qty	Remarks
34	AC cord stop	(18) ANG-FIX-1216	1	
35	Eyelet	(11) EYELET-010	2	
XQ303	Heat Sink	(49) RAD-P-088A		
XQ303	Heat Sink	(49) RAD-P-088A		
XQ303	Heat Sink	(49) RAD-P-088A		
XQ303	Heat Sink	(49) ACS-ST-1008		
XF601/602	FUSE Clip	(55) HOLD-FS-021		

Plugs and Tip

P	3P Q601	(48) PLUG-025A
A	3P Signal-Input	(48) PLUG-025A
V	3P Vertical Defl.	(48) PLUG-025A
H	3P Horizontal Defl.	(48) PLUG-025A
T	5P Transformer	(48) PLUG-026B
B	6P Bright/Contrast	(48) PLUG-032A
L	2P POWER LED	(48) PLUG-1052
E1/E2	1P Earth	(71) LUG-032

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